Promoters that are activated by DNA supercoiling have already been identified and include those for catabolite-sensitive genes — the maltose operons, the lactose and galactose operons and the tryptophanase gene[15]. The mechanism by which DNA supercoiling enhances transcription from these promoters is not well understood. What is clear, however, is that RNA polymerase unwinds DNA on binding to the promoter — a process which should occur more easily on negatively supercoiled DNA as it is already partially unwound[16]. Why then is gyrase synthesis activated by a relaxed rather than a negatively supercoiled DNA template? At present this problem is unresolved although preliminary evidence again suggests that control is exercised at the level of RNA transcription[4]. Structural and functional analysis of gyrase genes and their promoters should help clarify how DNA supertwisting differentially affects gene expression. □

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Science journals

Cryptozoology

from Robert M. May

OF the 79 *News and Views* pieces I have written over the past ten years, the one attracting far and away the most attention outside the ranks of *Nature* readers was a brief *jeu d'esprit* on 'The ecology of dragons' (*Nature* **264**, 16; 1976). This article was picked up by United Press International, and resulted in telephone calls from radio stations and newspapers in most English-speaking countries, offers to appear in three television shows and an invitation to write a coffee-table book about dragons. Needless to say, none of my other *News and Views* articles has produced anything approaching this reaction. The dragon article differs from the others only in that it deals with the unreal and fanciful, rather than with the real wonders that actually exist in the natural world. To generalize recklessly and gloomily, I think this isolated experience reflects a tendency on the part of the media — and maybe the public — to prefer meretricious marvels to real ones.

Be all this as it may, it is consistent with the fact that, of the plethora of new journals established in 1982–1983 (see the 6–13 October 1983 issue of *Nature*), *Cryptozoology* was the only one reviewed in *Newsweek*. *Cryptozoology* is the official journal of the International Society of Cryptozoology, whose president, Bernard Heuvelmans, defines the subject as "the science of 'hidden' animals". The first and to date only volume of the journal runs to 100 pages embracing articles, research reports, field reports and book reviews. By a rough count, 29 pages deal with 'wildmen' of one kind or another (such as 'Sasquatch' or 'bigfoot' in the Pacific Northwest and 'yeti' in China), 7 pages with mermaids in Papua New Guinea, 33 pages with the mysterious entities in Loch Ness and Lake Champlain, 16 pages with the putative sauropods (Mokele-Mbembe) of the Central African swamp-forest, and 15 pages with general definition and defense of cryptozoology as a legitimate subject for research. Clearly, if you want to be an interesting cryptobeast, you are well advised to be a large vertebrate, and preferably human-like or dinosaur-like.

More than half the pages devoted to human-like creatures are reviews of five books. These books appear to deal mainly with second- and third-hand anecdotes; it seems generally agreed that the hard evidence — photographs, tapes, casts of footprints — is fraudulent. An article by Guoxing on 'The status of wildman research in China' gives an earnest account of available reports, and speculates on whether the Chinese wildmen are surviving descendants of *Ramapithecus, Australopithecus* or possibly *Gigantopithecus*. With commendable honesty, the article concludes "it should be emphasized that many of the participants in Wildman research in China are professional scientific workers. At the same time, however, it has to be admitted that most of them are not well trained in faunal ecology, primatology, vertebrate paleontology, paleoanthropology, physical anthropology and other disciplines concerned with this topic". Wagner recounts tales told him by New Guinea natives about the mermaid-like *ri*, and comes to three conclusions: "they are certainly not dugongs" (it is sometimes suggested that manatees or dugongs gave rise to sailors' stories about mermaids); the reports are more substantial than the "inventories of rather fanciful 'bush' creatures" familiar to anthropologists working in New Guinea; and the reports "strongly suggest that some such creature exists, and that it remains unknown to science".

The papers on dinosaur-like creatures are, on the whole, less silly. A research report by LeBlond employs a photograph of the 'Lake Champlain monster' taken by Mansi in 1977, and uses standard results relating the appearance of the sea surface to wind speed, and thence to the length of wind waves, to estimate that the length of the 'monster' visible in the photograph is in the range 5–17 m. The evidence reviewed in other articles in *Cryptozoology* and in the pages of *Nature* over the past few years suggests that large objects of some kind (logs look like the best guess to me) are present in deep lakes such as Loch Ness or Lake Champlain, and LeBlond's elegant estimate of the physical dimension of one such object is useful.

Mackal, Greenwell and Wilkinson recount persistent reports of Mokele-Mbembe, a large creature with a long flexible neck and a tail like an alligator's, which inhabits the 60,000 square mile Likouala swamps in the remoter parts of the People's Republic of the Congo. These investigators recorded stories from the native inhabitants, including one of a hunter who had tracked a creature that left a path of grass flattened as if by a great tail, and positive reactions to photographs of sauropods. The reports also suggested that the apple-size fruit of the molombo (a tropical vine found in Africa) were the main diet of the Mokele-Mbembe. A separate paper by Weber, Berry and Greenwell therefore analyses the nutrient content of these fruit, and compares it with the nutrient requirements of typical large mammals, to conclude that molombo fruit alone could not sustain the Mokele-Mbembe. Mackal and his collaborators sensibly conclude that "our expedition found no compelling evidence that Mokele-Mbembe exists", although they append the usual appeal for further investigation.

Many people feel that the correct response from a scientist to the kind of enterprise this journal represents should be one of friendly, even encouraging, tolerance. At very least, I am persuaded such may be an expedient image to project. We would be ill-served if everyone studied safe subjects. But, in truth, my reaction to *Cryptozoology* is regret for the money libraries will waste on acquiring the journal (if only as a curiosity) and regret for the dissipated efforts that could be directed more productively to studying some of the species of tropical plants, insects and other organisms that may be going extinct at a faster rate than they are being classified. Even on its own Alice-Through-The-Looking-Glass terms, the journal *Cryptozoology* is marked by a rather arbitrary focus on only two groups — human-like and dinosaur-like — from the full cryptozoological spectrum of animals that may or may not exist; this spectrum is catalogued by Cohen in *The Encyclopedia of Monsters* (Dodd, New York, 1983). Some of the omissions are understandable: for instance, the lack of work on the unicorn is undoubtedly because these beasts are fairly generally agreed to have been hunted to extinction, a process made easier by virtue of their maladaptive attraction to virgins. Less understandable — especially to an antipodean — is the absence of any work on the bunyip, a particularly engaging but elusive member of the Australian cryptofauna. □

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